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Education

Ph.D. in Biophysics, University of Copenhagen, Denmark **2017**

Thesis Title: *Decision Making in Biological Systems*

Thesis Advisor: Prof. Namiko Mitarai, Prof. Kim Sneppen

Defense Date: 2017.03.31; Award Date: 2017.04.03.

M.Sc. in Computational Biology and Bioinformatics (with distinction), ETH Zurich and University of Zurich, Switzerland **2013**

Thesis Title: *Extend Network Motifs with Monotone Systems*

Thesis Advisor: Dr. Hans-Michael Kaltenbach, Prof. Joerg Stelling

B.Sc. in Chemistry, Peking University, China **2011**

B.Sc. in Computer Software, Peking University, China **2011**

Thesis Title: *Analysis of Protein Configuration with Kirkwood-Buff Theory*

Thesis Advisor: Prof. Yi-Qin Gao

Research Experience

Junior Professor, University of Stuttgart **2023.08-Present**

Theme: *Identify the molecular origin of single-cell heterogeneity and its implications on human diseases.*

Project Scientist, Research Center for Molecular Medicine of the Austrian Academy of Sciences (CeMM) and the RESOLUTE Consortium **2022.04-2023.05**

Advisor: Prof. Giulio Superti-Furga

Area of study: *Deorphanize solute carriers by integrating multi-omics and imaging datasets*

- Analyze large-scale transcriptomics and metabolomics datasets to dissect the functions of solute carriers.
- Analyze large-scale imaging datasets to identify the subcellular localization of solute carriers.

Postdoctoral Associate, University of Colorado Boulder **2017.06-2022.03**

Advisor: Prof. Sabrina Spencer

Area of study: *Proliferation-quiescence decision in cancer cells under oncogenic inhibition*

- Measure the proliferation-quiescence responses of single cancer cells using time-lapse microscopy and fluorescent live-cell reporters.
- Perform cell-biology experiments, including mammalian cell culture, immunofluorescence, and RNA FISH.
- Develop algorithms to analyze microscopy and single-cell RNA-sequencing datasets.

Ph.D. Student, University of Copenhagen **2014.02-2017.01**

Advisor: Prof. Namiko Mitarai, Prof. Kim Sneppen

Area of study: *Mathematical modeling of bacterial antibiotic responses*

- Construct ODE-based mathematical models to describe the stochastic switching of the Toxin-Antitoxin systems and its relationship with bacterial antibiotic persistence.
- Work closely with the experimental collaborators for experimental design and interpretation.

Research Assistant, ETH Zurich**2013.09-2014.01**

Advisor: Prof. Savas Tay

Area of study: *Single-cell heterogeneity of immune signaling*

- Construct ODE-based mathematical models to describe the single-cell heterogeneity of the mammalian NF- κ B pathway upon immunological stimulation
- Work closely with the experimental collaborators for experimental design and interpretation.

Publication

1. T.E. Hoffman,* **C. Tian**,* V. Nangia,* C. Yang, S. Regot, L. Gerosa, S.L. Spencer. CDK2 activity crosstalk on the ERK kinase translocation reporter can be resolved computationally. *Cell. Syst.* **16**: 101162 (2025). (*: equal contribution)
2. T. Wiedmer, S.T. Teoh, E. Christodoulaki, G. Wolf, **C. Tian**, V. Sedlyarov, A. Jarret, P. Leippe, F. Frommelt, A. Ingles-Prieto, S. Lindinger, B.M.G. Barbosa, S. Onstein, C. Klimek, J. Garcia, I. Serrano, D. Reil, D. Santacruz, M. Piotrowski, S. Noell, C. Bueschl, H. Li, G. Chi, S. Mereiter, T. Oliveira, J.M. Penninger, D.B. Sauer, C.M. Steppan, C. Viollet, K. Klavins, J.T. Hannich, U. Goldmann, G. Superti-Furga. Metabolic mapping of the human solute carrier superfamily. *bioRxiv* (2024).
3. K.R. Jacobson, A.M. Saleh, S.N. Lipp, **C. Tian**, A.R. Watson, C.M. Luetkemeyer, A.R. Ocken, S.L. Spencer, T.L. Kinzer-Ursem, S. Calve. Extracellular matrix protein composition dynamically changes during murine forelimb development. *iScience* **27**: 108838 (2024).
4. J.Y. Chen, C. Hug, J. Reyes, **C. Tian**, L. Gerosa, F. Fröhlich, B. Ponsioen, H.J.G. Snippert, S.L. Spencer, A. Jambhekar, P.K. Sorger, G. Lahav. Multi range ERK responses shape the proliferative trajectory of single cells following oncogene induced senescence. *Cell. Rep.* **42**: 112252 (2023).
5. C. Yang,* **C. Tian**,* T. Hoffman,* N. Jacobsen, S. Spencer. Melanoma subpopulations that rapidly escape MAPK pathway inhibition incur DNA damage and rely on stress signalling. *Nat. Commun.* **12**: 1747 (2021).
6. **C. Tian**,* C. Yang,* S. Spencer. EllipTrack: a global-local cell-tracking pipeline for 2D fluorescence time-lapse microscopy. *Cell. Rep.* **32**: 107984 (2020).
7. M. Min, Y. Rong, **C. Tian**, S. Spencer. Temporal integration of mitogen history in mother cells controls proliferation of daughter cells. *Science*. **368**: aay8241 (2020).
8. R. Fu, A. Gillen, R. Sheridan, **C. Tian**, M. Daya, Y. Hao, J. Hesselberth, K. Riemondy. clustifyr: An R package for automated single-cell RNA sequencing cluster classification. *F1000Res*. **9**: 223 (2020).
9. S. Fourati, A. Talla, M. Mahmoudian, J.G. Burkhart, R. Klén, R. Henao, T. Yu, Z. Aydın, K.Y. Yeung, M.E. Ahsen, R. Almugbel, S. Jahandideh, X. Liang, T.E.M. Nordling, M. Shiga, A. Stanescu, R. Vogel, **Respiratory Viral DREAM Challenge Consortium**, G. Pandey, C. Chiu, M.T. McClain, C.W. Woods, G.S. Ginsburg, L.L. Elo, E.L. Tsalik, L.M. Mangravite, S.K. Sieberts. A crowdsourced analysis to identify ab initio molecular signatures predictive of susceptibility to viral infection. *Nat. Commun.* **9**: 4418 (2018).
10. I. Miller, M. Min, C. Yang, **C. Tian**, S. Gookin, D. Carter, S. Spencer. Ki67 is a Graded Rather than a Binary Marker of Proliferation versus Quiescence. *Cell. Rep.* **24**: 1105-1112 (2018).
11. **C. Tian**, S. Semsey, N. Mitarai. Synchronized switching of multiple Toxin–Antitoxin modules by (p) ppGpp fluctuation. *Nucleic. Acids. Res.* **45**: 8180-8189 (2017).
12. R.A. Kellogg,* **C. Tian**,* M. Etzrodt, S. Tay. Cellular Decision Making by Non-Integrative Processing of TLR Inputs. *Cell. Rep.* **19**: 125-135 (2017).
13. **C. Tian**,* M. Roghanian,* M.G. Jorgensen, K. Sneppen, M.A. Sørensen, K. Gerdes, N. Mitarai. Rapid curtailing of the stringent response by Toxin-Antitoxin-encoded mRNases. *J. Bacteriol.* **198**: 1918-1926 (2016).
14. **C. Tian**, N. Mitarai. Bifurcation of transition paths induced by coupled bistable systems. *J. Chem. Phys.* **144**: 215102 (2016).
15. R.A. Kellogg, **C. Tian**, T. Lipniacki, S.R. Quake, S. Tay. Digital signaling decouples activation probability and population heterogeneity. *eLife* **4**: e08931 (2015).
16. H. Zhang, M. Lin, H. Shi, W. Ji, L. Huang, X. Zhang, S. Shen, R. Gao, S. Wu, **C. Tian**, Z. Yang, G. Zhang, S. He, H. Wang, T. Saw, Y. Chen, Q. Ouyang. Programming a Pavlovian-like conditioning circuit in Escherichia coli. *Nat. Commun.* **5**: 3102 (2014).

Teaching Experience

Instructor, Cell Stress Response and Cell Death Signaling, University of Stuttgart	2024, 2025
Instructor, Systems Theory in Systems Biology, University of Stuttgart	2024, 2025
Instructor, Cell Biology and Immunology I (Lab and Seminar), University of Stuttgart	2024, 2025
Instructor, Short-Read Sequencing Workshop, University of Colorado Boulder	2019.07
Teaching Assistant, Numerical Methods in Physics, University of Copenhagen	2015.07
Teaching Assistant, Biological Dynamics, University of Copenhagen	2015.04-2015.06
Teaching Assistant, Dynamical Systems and Chaos, University of Copenhagen	2015.02-2015.04
Teaching Assistant, Instrumental Analysis Laboratory, Peking University	2011.02-2011.06

Talks

CRC/Transregio 353 Seminar Series, University of Konstanz, Germany	2024.02
Stuttgart Research Center Systems Biology (SRCSB) Seminar Series, University of Stuttgart, Germany	2024.02
Punch and Posters, Biomedical Systems, University of Stuttgart, Germany	2023.10
Cell Bio Virtual 2020 (ASCB and EMBO Annual Meeting), Virtual	2020.11
From Functional Genomics to Systems Biology, EMBL, Virtual	2020.10
Single Cell Biology, Keystone Symposia on Molecular and Cellular Biology, Breckenridge, Colorado, USA	2019.01

Award

Marie-Curie Postdoctoral Fellowship (Awarded but declined; Score: 96/100)	2022.03
Conference Fellowship, EMBL Advanced Training Centre Corporate Partnership Programme	2020.11
Meritorious Winner, Mathematical Contest in Modeling	2011.02
Robin Lee Scholarship	2010.10
National First Prize, Chinese Undergraduate Mathematical Contest in Modeling	2010.09
Gold Medal, International Genetically Engineered Machine (iGEM) Competition	2009.11
May 4th Scholarship	2009.10
Starlight International Media Scholarship, 3rd Prize	2008.10

Academic Services

Manuscript Peer Review

- Direct requests from the editors: Cell Reports Methods, Annals of Applied Statistics, Genetics, Computational and Structural Biotechnology Journal, and PLoS One.
- In collaboration with my supervisors: Biophysical Journal, Cell Systems, eLife, PLoS Computational Biology, and Nature Communications.

Supervision

• Dr. Xin Zhang, Postdoctoral Researcher, University of Stuttgart	2024.03-Present
• Linda Mattes, Bachelor Thesis, University of Stuttgart	2024.10-Present
• Philip Benson, Ph.D. Lab Rotation, University of Colorado Boulder	2019.06-2019.07
• Nicole Jacobsen, Research Assistant and Honor Bachelor Thesis, University of Colorado Boulder	2018.01-2019.07

Examination Committee of Theses

• Melanie Mühlhig, B.Sc. Theses, University of Stuttgart	2024
• Antonia Rath, B.Sc. Theses, University of Stuttgart	2024